

CLAIM AMENDMENTS

1-51. cancelled

52. (currently amended) The light path of claim ~~51~~62, wherein the protective sheath is permeable to said second zone, and said metal coating also extends over the portion of the optical fiber inside the sheath.

53. (currently amended) The light path of claim ~~51~~62, wherein the end of the optical fiber that is situated in the second zone is connected to an optical measurement sensor via an optical connector.

54. (previously presented) The light path of claim 53, wherein the optical connector comprises a metal ferrule having one end of the optical fiber stuck therein, said end being stripped of the metal coating.

55. (currently amended) The light path of claim ~~51~~62, wherein said first zone is situated inside an optical measurement tool and said second zone is situated outside said tool.

56. (previously presented) The light path of claim 55, wherein the second zone is situated inside a production tube extending in a well passing through geological formations, with a petroleum fluid flowing along said production tube.

57. (previously presented) The light path of claim 55, wherein the second zone is situated in the cemented annulus lying between the walls of a well passing through geological formations and casing of the well.

58. (currently amended) The light path of claim ~~51~~62, wherein the end of the optical fiber that is situated in the first zone is connected to a light emitter or to a light receiver.

59. (currently amended) The light path of claim ~~51~~62, wherein said first and second zones are sealed relative to each other by means of a sealing gasket such that the metal coating of the optical fiber comes directly into contact with said gasket.

60. (previously presented) The light path of claim 59, wherein said sealing gasket is made of ceramic.

61. (previously presented) The light path of claim 60, wherein said ceramic is compacted around said metal coating.

62. (new) A light path extending between a first zone situated in the interior of an optical measurement tool and a second zone situated inside a well passing through geological formations, said first and second zones being sealed relative to each other, the light path comprising:

at least one optical fiber that is metal coated at least on the part of its length at the junction between said first and second zones; and

a protective sheath which contains the portion of the optical fiber situated in the second zone;

wherein said protective sheath is separate from the optical fiber and is adapted to maintain the respective pressure inside the protective sheath substantially equal to the pressure inside the second zone situated inside a well passing through geological formations.